

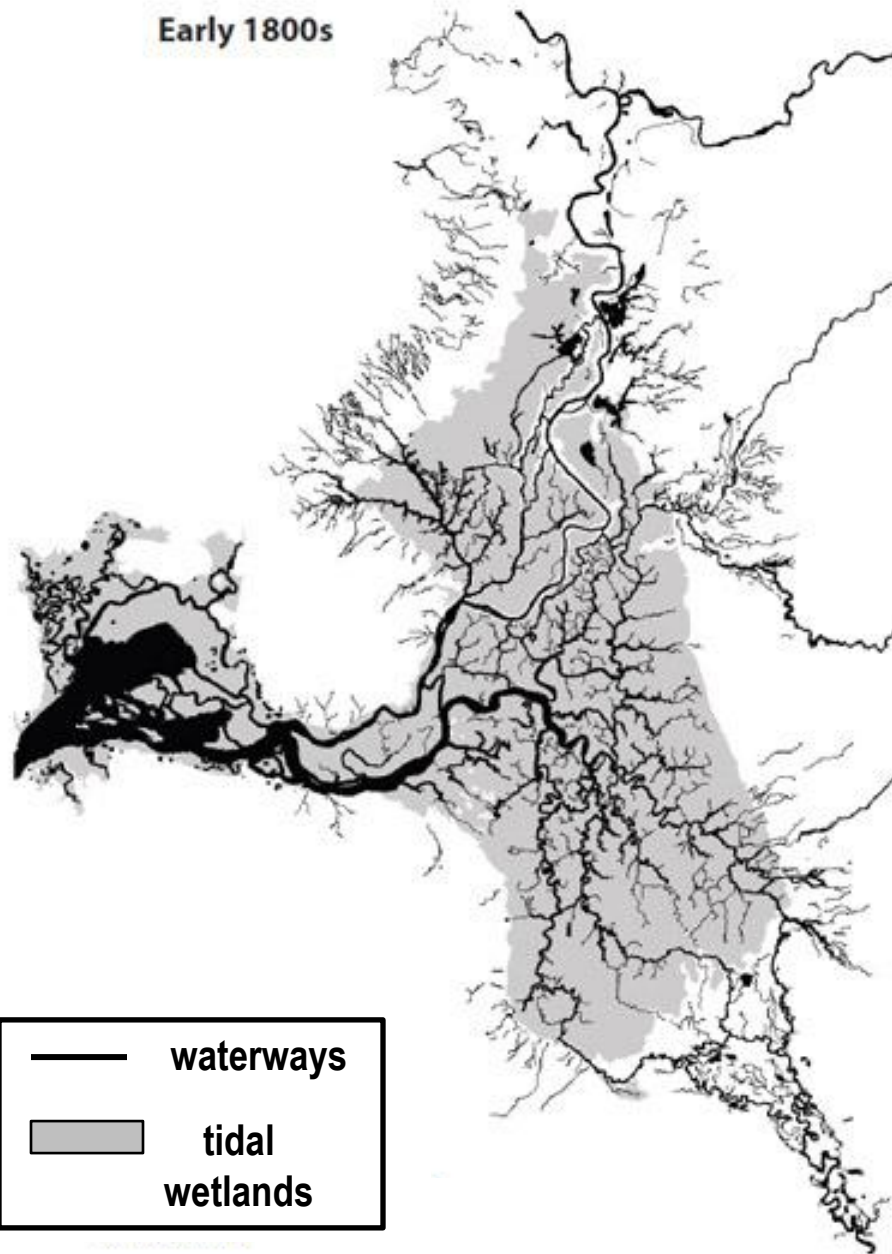
FISH RESTORATION PROGRAM AGREEMENT

**Implementing Habitat Restoration
Requirements Of The Biological
Opinions**

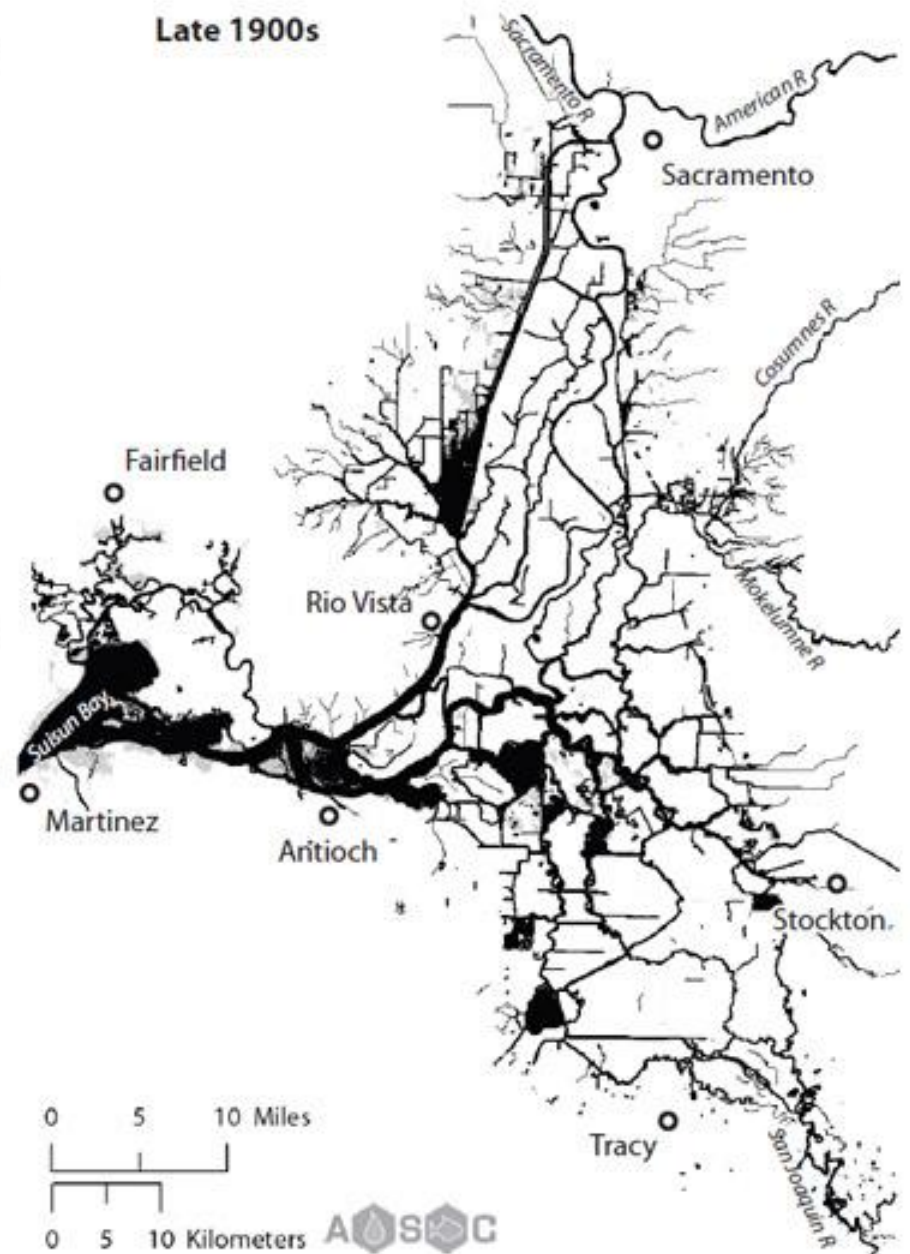
**Dennis McEwan
Department of Water Resources**



Early 1800s



Late 1900s



Whipple et al. 2012: Sacramento-San Joaquin Delta Historical Ecology Investigation

Listed Fish Species



Reclamation Photograph by René Reyes



Source: FWS



Reclamation Photograph by René Reyes



Source: DWR Aquatic Ecology



Photo by Pat Higgins

Source: FWS

Source: NOAA

Fish Restoration Program Agreement (FRPA)

- Executed October 2010
- Joint DWR and DFW program
- Fulfill habitat restoration obligations
- Establishes framework for selecting, funding, implementing and managing restoration projects

DWR Habitat Restoration Obligations

- **USFWS Delta Smelt Biological Opinion:**
 - *RPA 4: Restore 8,000 acres of intertidal and associated subtidal habitat*
- **NMFS Salmonid Biological Opinion:**
 - *Action 1.6.1: Restore salmonid rearing habitat*
 - *Action 1.6.2: Enhance existing habitat in Liberty Island and lower Cache Slough*
- **CDFW Longfin Smelt ITP:**
 - *Condition 7: Restore 800 acres of tidal habitat in the mesohaline zone of the Delta .*
- **DWR Environmental Stewardship Policy:**
 - *Contribute to the recovery of listed species*

FRPA Goals and Objectives

- **Restore 8,000 acres of tidal habitat**



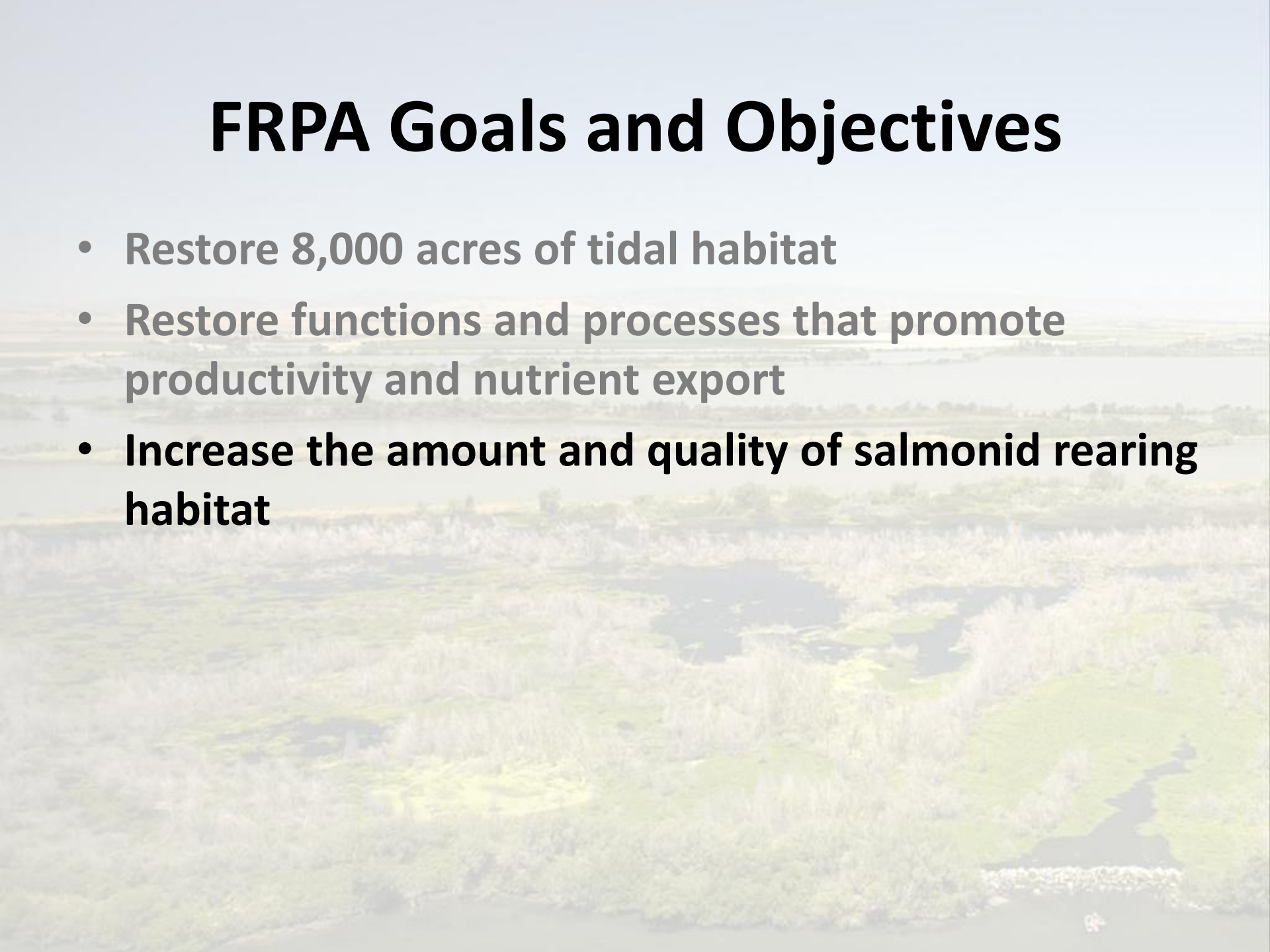
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- Monitor and adaptively manage restoration sites
- **Maintain consistency with other Delta plans and programs**

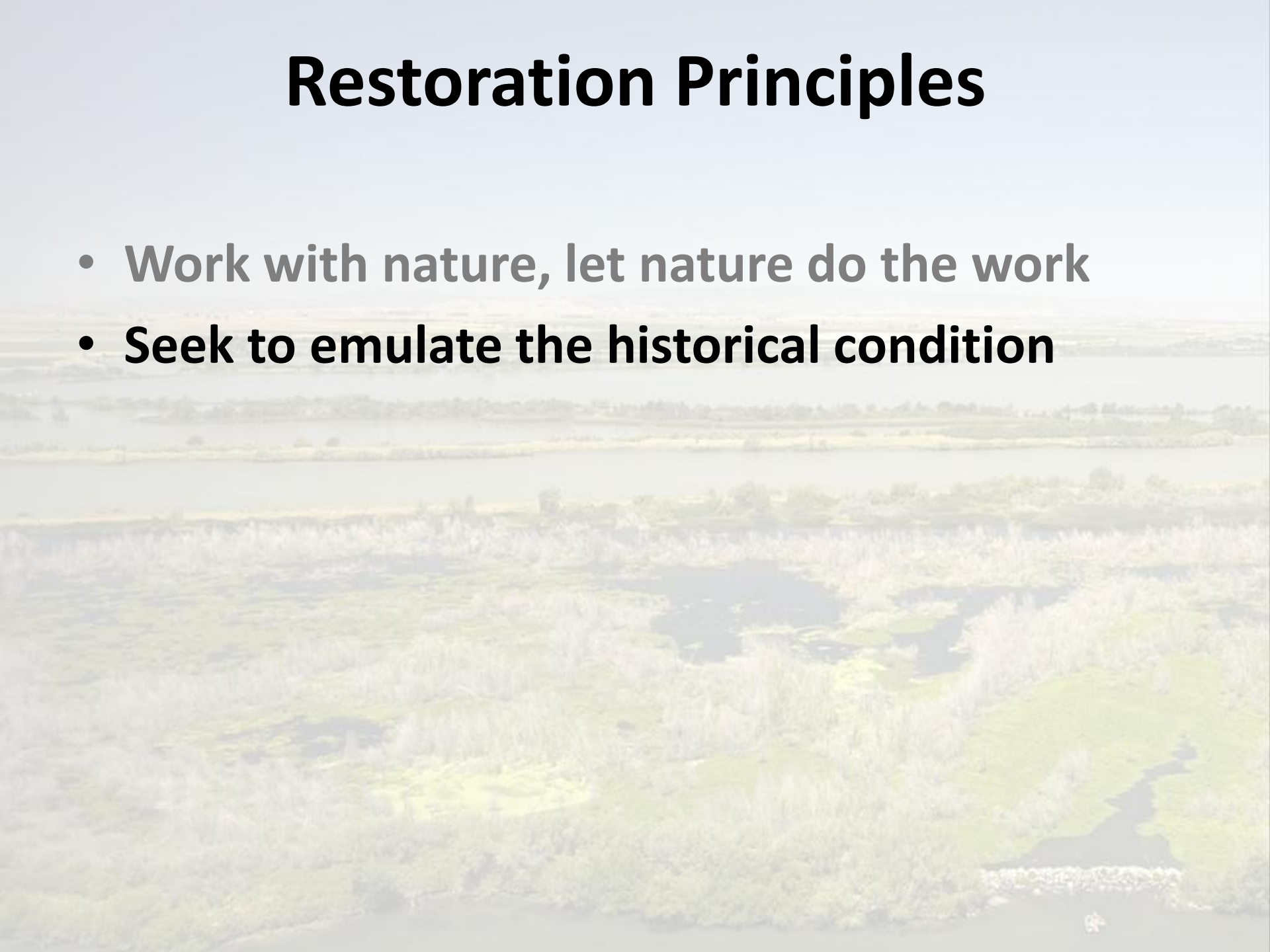
Restoration Principles

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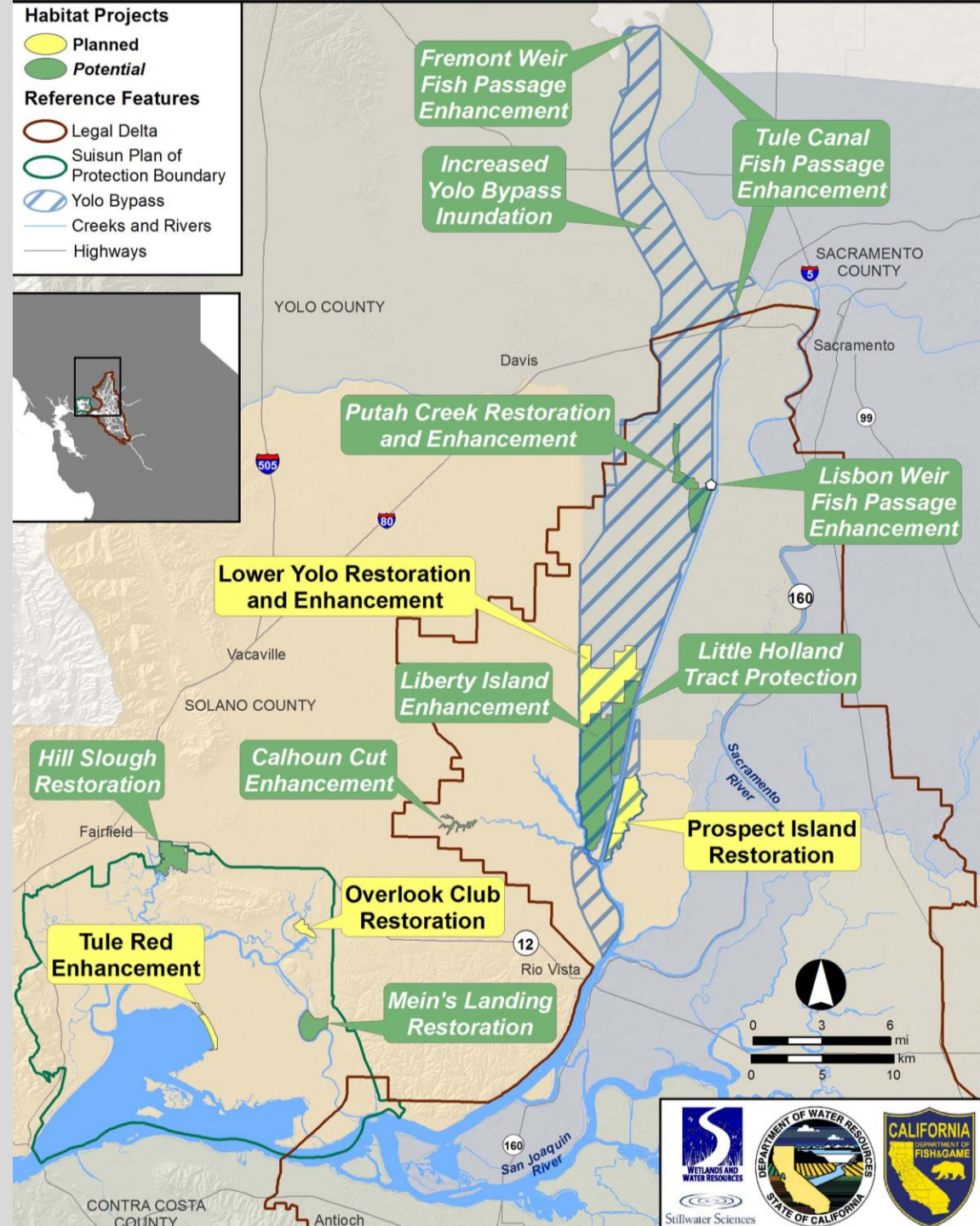
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- Provide a diversity of habitat types
- Discourage colonization by non-native species
- Design projects to be adaptively managed
- **Monitor outcome and refine conceptual models**

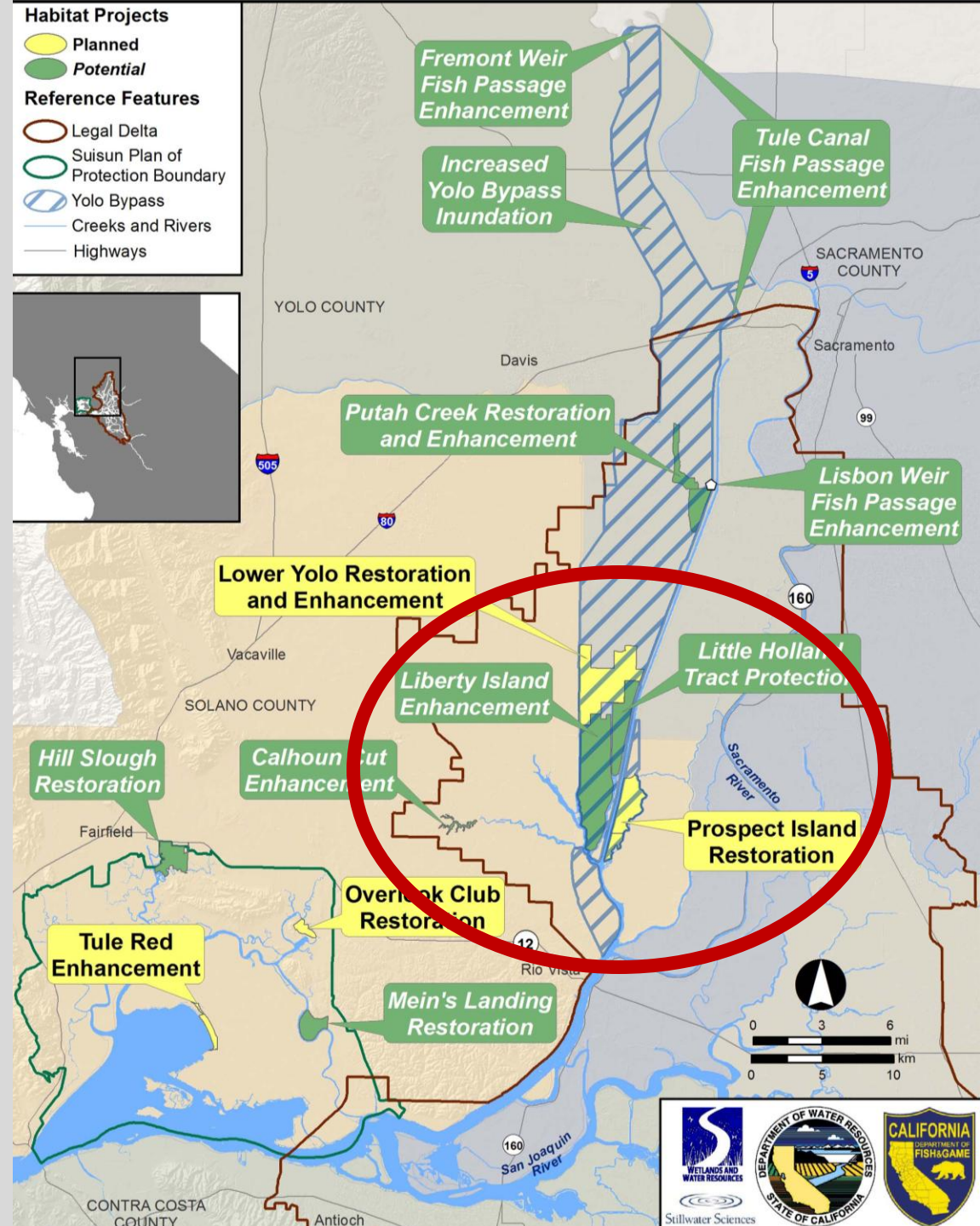
FRPA Near-term Actions

- Planned and potential projects
- Three geographic regions
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Cache Slough Complex



- Existing tidal marsh habitat
- Connected to Yolo Bypass floodplain
- Elevations are conducive to tidal habitat restoration
- Dead-end channels and shallow open water
- High turbidity
- High primary and secondary productivity
- Delta smelt and other native fishes
- Land in public ownership

Summary

- FRPA is a joint DWR-DFW program to facilitate implementation of Biop/ITP restoration requirements
- Restoration goals are focused on recovery of Delta native fish
- Objectives include restoring natural processes, habitat creation, and food web production
- Stakeholder involvement, monitoring, and adaptive management are critical to the success of the program

Fish Restoration Program

For more info:

<http://wwwdwr.water.ca.gov/environmentalservices/frpa.cfm>

Thank You

